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CASE REPORT

A case of mucosal leishmaniasis: Mimicking intranasal tumor with perforation of septum

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A 79-year-old male suffering from nasal congestion was referred to our hospital. Endoscopic examination revealed a hyperemic mass obstructing the left nasal passage. The lesion's surface was smooth. The findings of imaging studies were consistent with a benign tumor despite the erosion and perforation of the septum. The lesion originated from the middle concha and was attached to it with a thin stalk. It was removed easily by endoscopic resection. Histopathology revealed significant infiltration of mononuclear inflammatory cells, mostly lymphocytes and histiocytes, into the edematous subepithelial connective tissue. High-power magnification showed numerous *Leishmania* amastigotes in the cytoplasm of the histiocytes. A polymerase chain reaction experiment for *Leishmania* also confirmed the morphological diagnosis. No relapse was observed in the 12 months after surgery and the patient was doing well.

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Introduction

Leishmaniasis is a protozoal disease that is encountered in many countries and is caused by parasites belonging to the genus *Leishmania*. The prevalence of leishmaniasis has been estimated to be 12 million cases worldwide, and 1—1.5 million new cases are being reported each year.[1] Leishmania parasites, the causative agents of the disease, are transmitted through the bites of the flies that are known as *Phlebotomus* spp. in the Old World and as *Lutzomyia* spp. in the New World.[2] In humans, leishmaniasis occurs in three major clinical forms: cutaneous leishmaniasis (CL), mucosal leishmaniasis (ML), and visceral leishmaniasis.[3] Nearly 90% of cases of visceral leishmaniasis are reported from the Indian subcontinent and Sudan.[4] Although CL is especially frequent in the Mediterranean countries, including Turkey, ML is more frequent in South America.[5,6] Herein, we present an interesting case of ML, which caused airway passage obliteration and nasal septum perforation, mimicking a neoplastic process.

Case report

A 79-year-old male who had been suffering from nasal congestion was referred to our institution, Gulhane Military Medical Academy and School of Medicine, and evaluated in the outpatient service center of the ENT department. The physical examination was otherwise normal, except for a mass lesion in the left nasal passage. An endoscopic examination was performed; the results demonstrated the lesion as a smooth-surfaced, hyperemic mass, filling the entire left nasal passage and even causing erosion as well as perforation in the posterior half of the nasal septum (Fig. 1). A complete blood count, routine biochemical tests, erythrocyte sedimentation rate, and protein electrophoresis were performed, the results of all of which were normal. Chest X-ray and abdominal ultrasonography were unremarkable. Serological tests, namely, Hepatitis B surface antigen (HBsAg), Hepatitis C antibody (Anti-HCV), and Human immunodeficiency virus antibody (Anti-HIV), were all negative. A paranasal sinus computed tomography was carried out in order to elucidate the characteristics of the mass further. It confirmed that the mass lesion was filling the left-side airway completely. Perforation of the septum was also demonstrated clearly on the computed tomography scan. At the perforation site, the lesion was penetrating the septum and extending to the right nasal passage (Fig. 2).

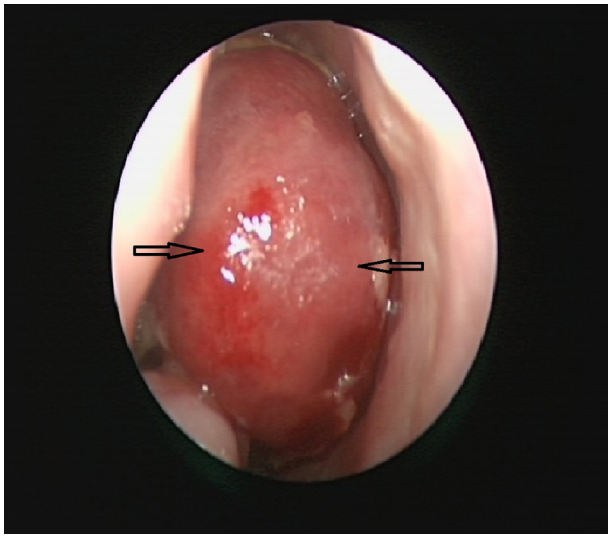

Figure 1. Endoscopic view of a hyperemic mass completely filling the left nasal passage and perforating the septum (arrows).

The tumoral mass was attached to the left middle concha with a thin stalk and was removed easily by endoscopic resection. No remnant of the lesion was found after surgical removal (Fig. 3).

The histopathological examination, however, surprisingly revealed that the lesion was inflammatory in nature, characterized by heavy infiltration of mononuclear cells such as lymphocytes and numerous histiocytes. Giemsa stain highlighted innumerable Leishman—Donovan bodies within the histiocyte cytoplasm (Fig. 4).

Using a generic primer pair LGITSF2/LGITR2 which was based on the sequences of the rRNA internal transcribed spacer 2 (ITS2) region of multiple *Leishmania* species, as previously described,[7] were detected *Leishmania* species in the nasal lesion (Fig. 5). A SYBR green-based real-time polymerase chain reaction (PCR) assay under development was used for categorization of the *Leishmania* spp. into six different groups (unpublished data). Using this SYBR green assay, the DNA sample extracted from the nasal tissue was found to be positive for *Leishmania donovani* complex.

Discussion

In the Mediterranean basin where Turkey is located and in the rest of the Middle East, CL is endemic. While CL is most commonly seen in the south-eastern Anatolian region, some sporadic cases are also being reported from other regions.[6] Between 1991 and 2003, a total of about 26,000 CL cases, most of them being from the province of Sanliurfa, was reported.[8] Studies have shown that the most commonly seen subspecies is *Leishmania tropica*. The other subtypes, such as *Leishmania infantum*, have rarely been reported.[9] The mucosal manifestation (ML), although well known in the New World, has occasionally been reported in the Old World. While in the New World ML cases, the nose is the most frequently affected area, other locations such as buccal, pharyngeal, or laryngeal regions have been described to be affected predominantly in the Mediterranean ML cases. Mucosal involvement probably results from a hematogenous or lymphatic spread from cutaneous lesions.[1,10]

The present case was a 70-year-old man; his physical examination and laboratory investigations revealed no other pathology than the nasal mass. The patient was regarded immunocompetent, and no skin lesions of leishmaniasis were detected. The clinical history of patient was unremarkable about any similar experience in the head and neck region. Owing to the lack of a history of any pre-

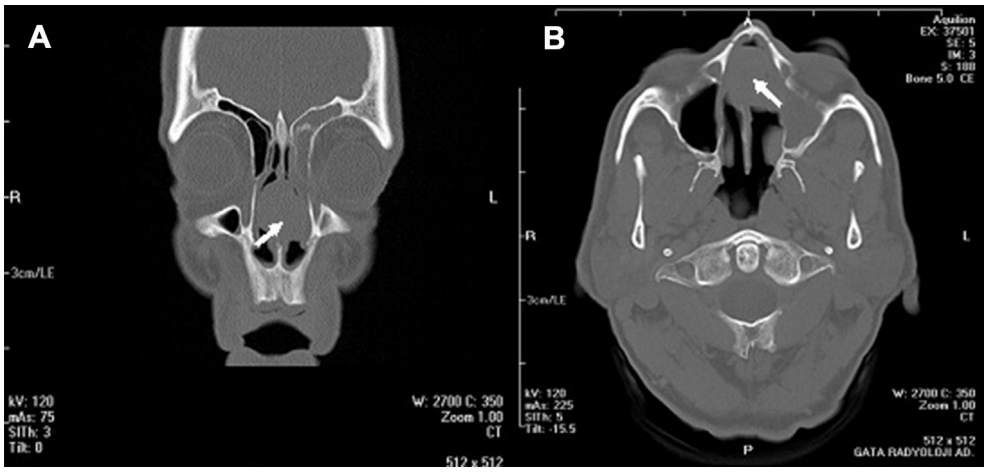

Figure 2. Computed tomography sections, (A) coronal and (B) axial, demonstrating a mass lesion consistent with a neoplastic growth completely filling the left nasal passage, perforating the septum, and even extending to the right nasal passage (arrows).

existing lesions, we considered the possibility of sand fly bites that might have implanted the causative agents in the patient's nose. Previous reports in the literature regarding intranasal ML cases demonstrated a similar lack of any previous history of skin lesions, leading to conclusions analogous to ours.[11]

The diagnosis of ML, as being routine in CL, is based on the biopsy or culture and/or PCR of the materials taken from the affected region. The sensitivity of culture and PCR for *Leishmania* has been reported to be in the range of 42—46% and 80—98%, respectively.[12] Fewer parasites were observed in ML cases than in CL cases; hence, establishing a definite diagnosis is not always easy and possible. Pirmez et al[13] have reported that only 17% of ML cases are smear positive, while 71% are PCR positive. In our case, we could both manage to observe Leishman—Donovan bodies in tissue sections and obtain a positive result in PCR for the *Leishmania donovani* complex. The samples were not cultured due to technical difficulties and involvement of a time-consuming procedure.

In ML, septal perforation and facial deformities may occur due to erosion in the underlying nasal bone and cartilages. In the known literature, nasal septum perforation was most commonly found to be associated with *Leishmania braziliensis*. However, our patient had the *L. donovani complex*.[4,11]

In a study conducted by Camargo et al,[14] 26 patients having leishmaniasis with nasal involvement were evaluated by computed tomography. The most consistent finding among these patients was mucosal thickening. The authors, with support from this finding, have concluded that the lesions in these patients are not limited to the nasal mucosa but extend to the paranasal sinuses.

Pentavalent antimonial compounds are the drug of choice in the treatment of ML the. Alternatively, pentamidine isethionate and amphotericin B can also be used. The present case was operated by an otorhinolaryngologist, taking into account the possibility of a neoplasm. The mass-like lesion was excised with clean surgical margins.

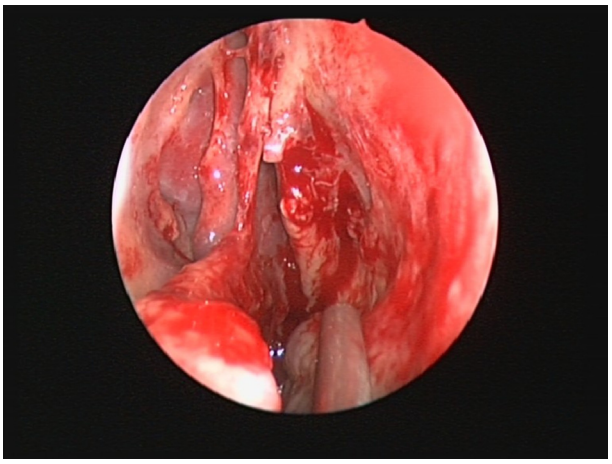

Figure 3. Appearance of the nasal cavity after the excision of the mass (endonasal endoscopic examination).

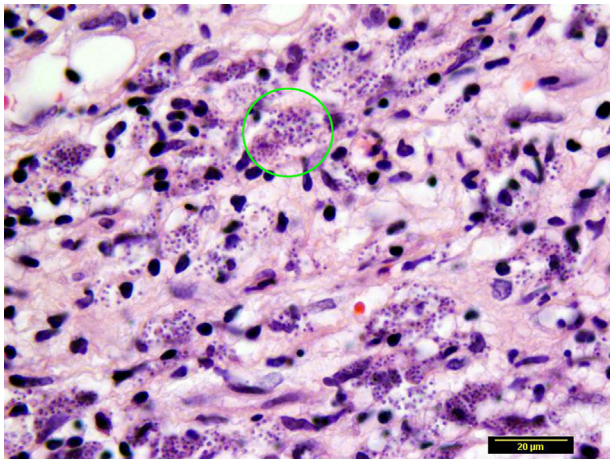

Figure 4. Giemsa-stained light microscopic image of the lesion revealing numerous *Leishmania* bodies in the cytoplasm of the histiocytes (inside the green circle) (Giemsa stain; magnification 100×).

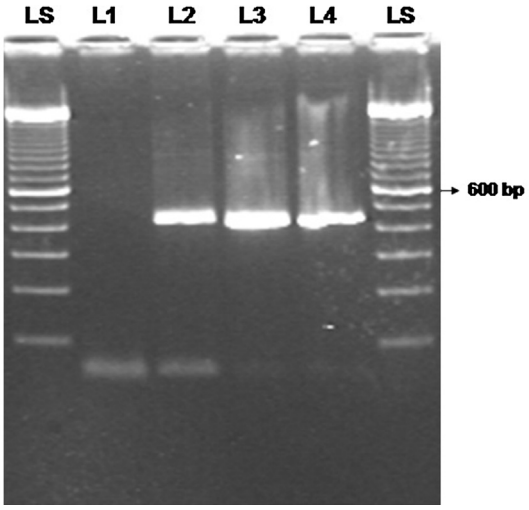

Figure 5. Agarose gel electrophoresis showing PCR amplicons (~420 bp) produced with generic primers LGITSF2/LGITSR2; DNA was extracted from the nasal tissue. Lane 1, negative control; lane 2, *L. donovani* positive control; lanes 3 and lane 4, DNA from the nasal tissue; lane S, 100-bp ladder-size standards.

Therefore, we thought that no medical treatment would be required. A relatively long follow-up period without any relapse supports our decision.

In conclusion, localized nasal ML is not frequently encountered in our geographical region. However, this should be kept in mind as a possible differential diagnosis of nasal masses and must be treated accordingly.

Conflicts of interest

All the authors have no Conflict of interest to declare.

References

1. Lessa HA, Lessa MM, Guimaraes LH, Lima CM, Arruda S, Machado PR, et al. A proposed new clinical staging system for patients with mucosal leishmaniasis. *Trans R Soc Trop Med Hyg* 2012;**106**:376—81.
2. Garcia de Marcos JA, Dean Ferrer A, Alamillos Granados F, Ruiz Masera JJ, Cortes Rodriguez B, Vidal Jimenez A, et al. Localized leishmaniasis of the oral mucosa. A report of three cases. *Med Oral Patol Oral Cir Bucal* 2007;**12**:E281—6.
3. Aliaga L, Cobo F, Mediavilla JD, Bravo J, Osuna A, Amador JM, et al. Localized mucosal leishmaniasis due to *Leishmania (Leishmania) infantum*: clinical and microbiologic findings in 31 patients. *Medicine* 2003;**82**:147—58.
4. Antinori S, Schifanella L, Corbellino M. Leishmaniasis: new insights from an old and neglected disease. *Eur J Clin Microbiol Infect Dis* 2012;**31**:109—18.
5. Markle WH, Makhoul K. Cutaneous leishmaniasis: recognition and treatment. *Am Fam Physician* 2004;**69**:1455—60.
6. Ok UZ, Balcioglu IC, Taylan Ozkan A, Ozensoy S, Ozbel Y. Leishmaniasis in Turkey. *Acta Trop* 2002;**84**:43—8.
7. de Almeida ME, Steurer FJ, Koru O, Herwaldt BL, Pieniazek NJ, da Silva AJ. Identification of *Leishmania* spp. by molecular amplification and DNA sequencing analysis of a fragment of rRNA internal transcribed spacer 2. *J Clin Microbiol* 2011;**49**:3143—9.
8. Turgay N, Bayram Delibas S, Dirim Erdogan D, Ozbel Y. Cellular immune response of patients with anthroponotic cutaneous leishmaniasis in Şanlıurfa. *Turkiye Parazitol Derg* 2006;**30**:7—10.
9. Toz SO, Nasereddin A, Ozbel Y, Ertabaklar H, Culha G, Sevil N, et al. Leishmaniasis in Turkey: molecular characterization of *Leishmania* from human and canine clinical samples. *Trop Med Int Health* 2009;**14**:1401—6.
10. Richter J, Hanus I, Haussinger D, Loscher T, Harms G. Mucosal *Leishmania infantum* infection. *Parasitol Res* 2011;**109**:959—62.
11. Faucher B, Pomares C, Fourcade S, Benyamine A, Marty P, Pratlong L, et al. Mucosal *Leishmania infantum* leishmaniasis: specific pattern in a multicentre survey and historical cases. *J Infect* 2011;**63**:76—82.
12. Scope A, Trau H, Bakon M, Yarom N, Nasereddin A, Schwartz E. Imported mucosal leishmaniasis in a traveler. *Clin Infect Dis* 2003;**37**:e83—7.
13. Pirmez C, da Silva Trajano V, Paes-Oliveira Neto M, da-Cruz AM, Gonçalves-da-Costa SC, Catanho M, et al. Use of PCR in diagnosis of human American tegumentary leishmaniasis in Rio de Janeiro, Brazil. *J Clin Microbiol* 1999;**37**:1819—23.
14. Camargo RA, Tuon FF, Sumi DV, Gebrim EM, Imamura R, Nicodemo AC, et al. Mucosal leishmaniasis and abnormalities on computed tomographic scans of paranasal sinuses. *Am J Trop Med Hyg* 2010;**83**:515—8.